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ABSTRACT

A study addressed the relationship of culturally related schema to comprehension and examined the effect of instruction using thematic units upon the development of background knowledge. Subjects were 25 pupils (aged 8 to 10 years) enrolled in a primary school in Scotland and 21 students enrolled in a 3rd-grade class in Texas. Subjects listened to a passage about their own culture and responded to a 10-item multiple choice test. The subjects then listened to a passage about the other culture and were given a similar test. The subjects participated in a one-week thematic unit about the other culture and again answered the culturally specific questions. Results indicated that not all subjects in a cultural group shared the same knowledge or understanding of their own culture, and that subjects of a culture knew considerably more about other cultures than was expected. Results also indicated that the use of thematic units as a method for improving comprehension was a viable strategy provided that certain factors were considered, e.g.: (1) the content taught; (2) the strategies planned; and, most importantly, (3) the characteristics of the students instructed. (Six tables of data and 2 figures displaying the specific vocabulary and concepts in the stories read to the subjects are included; 22 references are attached.) (RS)

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THE EFFECT OF CULTURALLY RELATED SCHEMATA AND INSTRUCTION USING THEMATIC UNITS ON COMPREHENSION

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Abstract

The relationship between background knowledge and comprehension has been well researched for more than a decade. Studies of schema theory show that reading is not only an active process, but also an interactive one. If what readers know before they read effects how well they understand, what can teachers do to ensure that this background is developed? This development of background knowledge may be doubly important for teachers working with linguistically or culturally different learners who are being asked to read texts depicting a culture very different from their own. The purpose of this paper is to describe a cross-cultural study conducted in two classrooms: one in Texas and the other in Scotland. Within the framework of this study, we will look at the effect of culturally related schema on comprehension and assess the effectiveness of instruction upon the development of background knowledge.

THE EFFECT OF CULTURALLY RELATED SCHEMATA AND INSTRUCTION USING THEMATIC UNITS ON READING COMPREHENSION

The relationship between background knowledge and comprehension has been well researched for more than a decade. Studies of schema theory show that reading is not only an active process, but also an interactive one. The process of comprehending involves the message on the page and the prior knowledge the reader brings to the task. It is the nature of this prior knowledge or background experience that is of interest to teachers. If what readers know before they read effects how well they understand, what can teachers do to ensure that this background is developed? This development of background knowledge may be doubly important for teachers working with linguistically or culturally different learners who are being asked to read texts depicting a culture very different from their own. The purpose of this paper is to describe a cross-cultural study conducted in two classrooms: one in Texas and the other in Scotland. Within the framework of this study, we will look at the effect of culturally related schema on comprehension and assess the effectiveness of instruction upon the development of background knowledge.

Background

Reading as an interactive process is described by Rumelhart (1976). He states that reading involves more than print itself, it involves the perceptual and cognitive processes used by readers in obtaining meaning. These cognitive processes, called schemata (Rumelhart, 1980), develop throughout a person's lifetime as he or she interacts with the world. Reynolds and others (1982) suggest that readers acquire meaning from text by analyzing words and sentences against the backdrop of their own personal knowledge of the world. They also suggest that personal knowledge is conditioned by age, sex, race, religion, nationality, occupation--in short, by a person's culture. Other research studies which support the concept of culturally related schema affecting comprehension were conducted by Steffensen and others (1978) using Indian and American adults; Kintsch and Greene (1978) using Alaskan folk myths with a group of college-age students; Anderson and Barnitz (1984) using a

population of sixth-grade students in Catholic and Greek Orthodox schools; and Pritchard (1990) in a study of proficient adolescent readers from the United States and the Pacific island nation of Palau. Erwin (1991) found that after hearing a story about their own culture, British and Texan students could generally speaking answer both literal and inferential questions about the story. Sadoski, Paivio, and Goetz (1991) in a comprehensive review of research on schema theory state that if, as Steffenson, Joag-Dev, and Anderson (1979) propose, assigning culturally unfamiliar texts to readers amounts to assigning them bizarre texts, this may reflect the difficulties that ethnic minority children have in learning to read material written for the majority culture. They also suggest that these findings may be among the most educationally relevant in the schema literature.

The effect of instruction on the development of background knowledge has also been documented. Studies by Stevens (1982) using direct instruction; Hayes and Tierney (l982) suggesting the use of analogies to relate background experiences to new information in the text; Sanacore (l983) applying strategies such as PReP, Structured Overviews, PQ4R, Discourse Types, Response Heuristic, and Writing Patterns, as ways of integrating reading and writing to facilitate the use of prior knowledge; and the teaching of word meanings by Eeds and Cockrum (l985) appear in the literature. Therefore, some research exists to support teaching background information and comprehension strategy skills as a method for improving comprehension.

A strategy that has not been well studied is the use of thematic units to integrate curriculum and improve students' background for topics read. The idea of integrating instruction is not a new one. The American Progressive Education movement of the early twentieth century proposed a project approach to instruction which led to units being taught in science and social studies in the 1960's and l970's (Spodek, 1972). The use of units in early childhood programs was (and still is) seen as a way to coordinate activities, strengthen and reinforce desired teaching concepts, and meet the specific needs of young children (Eliason & Jenkins, 1986). Pappas, Kiefer, and Levstik (1990) write that thematic units link together content from many areas of the curriculum, depict the connections that exist across disciplines, and provide children ownership over their own learning. In a discussion of the evaluation of thematic units in *The Whole Language Catalog* (1991), Kenneth Goodman suggests that teachers need to show how thematic units (1) build knowledge,

(2) develop problem solving and other cognitive strategies, and (3) improve self-confidence in the learner. Does a thematic unit which establishes ownership, the improves self-confidence, and builds knowledge also improve comprehension? Research is unclear on this point.

The present study is an attempt to answer two questions in a cross cultural context. First, is there a relationship between culturally related background knowledge and comprehension? Are persons able to comprehend authentic text which relate to their own culture better than authentic texts which do not? Second, are thematic units an effective strategy for building background experiences which then facilitate comprehension?

Method

Design

This study was designed to answer two basic questions. One question addressed the nature of culturally related schema and its relationship to reading comprehension. It was assumed that students/pupils of a culture would be able to understand a passage about that culture and then answer both inferential and literal comprehension questions about that passage. It was further assumed that students/pupils of a differing culture would have difficulty with the process when hearing a passage about a culture other than their own.

The second question looked at the effect of instruction upon the development of background knowledge. In this study instruction involved the teaching of thematic units that contained culturally specific information. It was assumed that after instruction students/pupils of a culture would be able to answer questions much as those students/pupils of the original culture would answer.

The study was designed to answer the two questions listed above. A simple pre- and post-test design was established. Two groups of students/pupils, a Scottish class and a Texan class, listened to a passage about their own culture and then responded to a ten-item multiple choice test. Next, the groups listened to a passage about the other culture and were given a similar test measuring concepts and vocabulary from the culturally different passage. The students/pupils participated in a one-week thematic unit about the different culture and again listened to the passage about that culture, and again answered the culturally specific questions. Simple frequencies were

calculated to determine the percent of children in each group answering correctly the ten questions on each test. The research design of the study is shown in Table 1.

Insert Table 1 Here

Subjects

The subjects included two classrooms of children (ages 8, 9, and 10). One classroom was a primary IV class (25 pupils) at Tillicoultry Primary School, Tillicoultry, Scotland. The other group was a third grade class (21 students) at Sam Houston Elementary School, Bryan, Texas. Tillicoultry is a small town northwest of Edinburgh. The primary industry in the community is the milling of tartan cloth, but farming and ranching are also important to the economy. The school is large, containing approximately 600 students in grades nursery through primary VII. Bryan is a medium-sized city in central Texas. Proximity to a major university, farming, ranching, and light industry provide a solid economic base for the community. Sam Houston Elementary is a large school of approximately 700 students in grades kindergarten through grade four. Both schools are located in middle-class areas and have only small numbers of minority children. Because the design was developed to assess listening comprehension, not reading comprehension, no attempt was made to measure either reading achievement or IQ of the children in the two groups.

Materials

In the study, two chapters, one from each of two books, were used to assess listening comprehension. The books were chosen according to the following criteria:

1. The content of each chapter was of probable interest to children in the chosen classes.
2. The chapters included culturally relevant vocabulary and concepts.
3. The author of each book was a member of the cultural group represented in the story, thus suggesting an authentic point of view.

4. The stories were matched according to literary characteristics such as genre, characterization, setting, and theme.

The two books chosen were *Cissy's Texas Pride* by Edna Smith Makerney (1975) and *Simon's Challenge* by Theresa Breslin (1988). The books contained content that was of interest to the children in each group; included relevant concepts; and, shared the following criteria: both were examples of contemporary realistic fiction; each had a similar protagonist--a child approximately l0 years of age who appears to be mature beyond his/her years; each had a similar setting, time--present (each chapter took place on a Saturday morning) and place--Scotland or Texas; each contained simple episodic plots based upon a family's struggle to overcome a hardship; and each shared a common theme--in times of need, family members can and should pull together to solve problems. The books were chosen and the concepts and vocabulary were identified by the researcher, but the interest level of the students and the acceptability of content and vocabulary were evaluated by the headteacher of the Scottish school and the principal of the Texan school.

Because of the length of the stories, only one chapter of each book was read to the children in the study. These chapters contained a significant number of terms and concepts that should have been familiar to children growing up in the culture of the text and probably not to the children growing up in the other culture. The concepts were represented by the following categories: history, geography, clothing, food, equipment, animals, figurative language, and other vocabulary. The semantic maps in figures 1 and 2 display the specific vocabulary and concepts within these categories.

Insert Figures 1 and 2 Here

For each passage, twenty four-item multiple-choice questions were written. The questions and copies of the chapters were submitted to the principal or head teacher of each school for evaluation. The principal of the Texan school and the headteacher of the Scottish school were asked to evaluate the passages and questions in terms of students'/pupils' familiarity with concepts, vocabulary, and testing format. The passages and questions

were not given to either the classroom teachers or the pupils/students of each school. From the information gathered, ten multiple choice questions were chosen for each test: five literal and five inferential. The pre- and post-test for each passage were the same.

For instructional purposes two thematic units were developed by the researcher. Each unit was divided into five daily lessons which centered around the following questions:

1. What do Scottish/Texan children know about Texas/Scotland?
2. Where is Texas/Scotland located?
3. What does Texas/Scotland look like?
4. How old is the state/country?
5. How do Texan/Scottish children live, dress, eat, talk?

Embedded in each unit were the concepts identified for each chapter. Each unit involved a variety of instructional strategies and materials that enabled the pupils/students to gain knowledge of the other culture. Books were read, slides and pictures viewed, food tasted, games played, etc. The two units were matched as carefully as possible both in terms of content and structure. In addition to the units, study guides for each cultural unit were developed.

Procedures

The study was conducted in May, 1991 by the researcher with the assistance of the classroom teachers. In each setting, early in May for the Texan class and later the same month for the Scottish class, the groups of pupils/students were given the tests for their culture on day one of the study. The tests were read to the children by the classroom teachers. This was done to eliminate any dialectical differences between the Scottish dialect of the Scottish pupils and the Texan dialect of the Texan researcher. These tests served as the control for the two groups. Also on day one, the teachers read the passages and administered the pre-tests for the differing culture following the procedures stated above. For five consecutive days, beginning on day one and ending on day five, the researcher spent approximately 1 1/2 to 2 hours each day in each classroom teaching the thematic unit for the differing cultures to each group of pupils/students. As closely as possible all procedures were standardized between the two groups. On the fifth day, the passages and post-tests for the differing cultures were administered to the classes, again by the classroom teachers.

Results

In this section, the scores of the British and the Texan children are compared on both the British and Texan tests and analyzed in light of the questions posed above:

Insert Tables 2 and 3 Here

Question 1: Is there a relationship between culturally related background knowledge and comprehension? Are persons able to comprehend authentic texts which relate to their own culture better than authentic texts which do not?

It was expected that a large percentage (75% or more) of the children listening to a passage about their own culture would be able to answer questions about that culture. For 12 of the 20 questions across the two groups on the two passages, this was true. In these instances at least three-fourths of the children in the groups correctly answered the questions from the story about their own culture.

On 7 of the 10 questions on the pre-test about their own culture, Scottish pupils showed considerable knowledge about their culture. On three questions they demonstrated limited understanding. Few (8%) of the pupils answered the literal question (Q8) which addressed leaving the precinct to go to the town centre. A large percentage (56%) substituted instead the term housing estate, which is an acceptable answer in the Scottish culture. Approximately a third (32%) answered correctly the location of the Antonine Wall (Q3). When asked about this answer, the Scottish teacher said that the study of the Romans in Scotland would not be done until the primary V year. Only 56% of the pupils knew that potato scones (Q2) were similar to pancakes.

For the Texan group, the results were not as clearly defined. Seventy-five percent of the group answered only 5 of the 10 questions. Texas students did not appear to have well formed schema for the following concepts: (Q4) pick-up truck (66.7%), (Q6) corral (42.9%), and (Q7) the name of the Ross's brand (0%). Texan students thought a pick-up might be a semi-trailer truck (33.3%); a corral might be a barn (28.6%) or a feed lot (23.8%); and gave two

answers that could represent what was branded instead of the name of the brand: Play Boy (42.9%) and Texas Pride (38.1%). Both are names of horses in the story. The percentage of students answering two other questions approached the 75% criteria. A large percent of the students knew (Q9) that branding was done to prove ownership (71.4%) and (Q2) what biscuits were (71.4%). Of the eight questions not answered by 75% or more of the children in the two groups, 5 of the 8 questions required the children to draw inferences when answering the questions. The answers did not appear in the text. For these question is would appear that a considerable number of pupils/students lacked the requisite background information to draw inferences from the information given.

Conversely, it was expected that children from one culture would have difficulty answering questions about another culture. It was assumed, therefore, that after listening to a passage about the different culture 25% or fewer of the children would be able to answer the pre-test questions. On only 6 of the 20 questions could this be confirmed.

The six questions which were answered by 25% or fewer of the children assessed the following concepts: for the Scottish group, (Q2) biscuits (16%), and (Q7) the Ross's brand name (16%); and for the Texas group, (Q1) jumper (9.5%), (Q3) location of Antonine wall (23.8%), (Q4) the River Clyde (23.8%), and (Q8) precinct (9.5%). Four of the six questions required the children to draw inferences from the text. The answers were not explicitly stated in the chapters read. Two questions were at the level of literal comprehension: leaving a precinct for the town center and the name of the Ross's brand.

On the pre-test for the differing cultural group, both the British and Texan children demonstrated understanding of relevant concepts for the other culture or were able to answer the questions based upon the knowledge in the text only. More than 25 % of the children were able to answer 14 or the 20 questions about the differing culture, and a large percentage (75% or more) were able to answer three questions on the pre-test about the other culture. For the Scottish group more than 75% understood the statement "I beat you by a country mile" (Q3) and understood the price of a horse (Q10). For the Texan group more than three-fourths understood about finding Roman coins in the park (Q10) . All three of these questions were written at a literal level of comprehension. The answers to the questions were explicitly stated in the chapters. of the questions answered by between 25% and 75% of

pupils/students of both groups, six questions were inferential and 5 questions were literal. There appears to be little difference in the performance of the groups across question type.

Question 2: Are thematic units an effective strategy for building background experiences which then facilitate comprehension? After instruction will students/pupils perform much as pupils/student of the original cultural?

This question looks at the improvement of scores across both groups after participating in a one-week thematic unit about the differing culture. Table 4 provides a display of scores across tests, groups, and question type.

Insert Table 4 Here

It was hypothesized that after instruction a greater percentage of children would be able to answer post-test than pre-test questions about the differing culture. For l3 of the 20 questions across both groups on both passages this question can be answered affirmatively.

Within the Texan group, the percentage of students answering 8 of the l0 questions improved. For this group the percentage answering the question about the colour-in poster (Q9) remained the same (66.7%), and on the question concerning the weather in Scotland (Q5), the percentage decreased from 66.7% to 33.3%. The answer to Question 9 was explicitly stated in the text while Question 5 required the students to use background experiences to correctly answer the question.

After instruction, the percentage of Scottish pupils answering each question improved on only 5 of the 10 questions. For three questions (wearing jeans (Q1), the use of figurative language (Q3), and the name of the brand (Q7)) the percentage correctly answering the questions remained the same from the pre- to the post-test. On two questions the percentage answering the questions decreased: (Q2) biscuits (16% to 0%); and (Q6) corral (52% to 48%). After instruction, improvement was observed on two of the five inferential questions and three of the literal questions.

After participating in a one-week thematic unit about the differing culture, did the groups perform much as the original cultural group performed on the

pre-test for their own culture? Tables 5 and 6 provide data to answer this question. These tables not only compare the percentages of students/pupils answering the pre-tests for the original cultural groups with the post-test for the groups after instruction, but also show the most frequently given answers across both question types for each group.

Insert Tables 5 and 6 Here

It was assumed that students/pupils in the other cultural group would perform much as the original group after instruction. For this study "much as" was defined as falling within 10 percentage points. On only 8 of the 20 questions for both groups across both question types was this confirmed. These questions were evenly divided by question type (4 literal and 4 inferential), but not across groups. The Scottish group performed much as the Texan group on 5 of the 8 questions.

The most frequently given answers were analyzed to more carefully assess the type of responses given by the two groups on each test. These data are also shown in Tables 5 and 6. For 13 of the 20 questions across both question types on both tests, the correct answer was the one most frequently given by both groups of students/pupils. While the percentage of students/pupils answering the questions correctly in the two groups might not fall within the 10 percentage point criterion established above, more of the students/pupils in each group gave the correct answer than any other on these questions.

The responses on the other 7 questions across both tests provide insight into the thought processes of the students/pupils in the two groups. Question 8 (literal) of the Scottish test read: Simon, Jessica and their mother left the_____to go to Glenburn town centre. The correct answer, as stated in the text, was precinct. Only 9.5% of the Scottish pupils answered the question correctly. Most of the Scottish pupils (56%) gave the answer housing estate, which is a more familiar term. No clearly delineated answer was given by a majority of the Texan students: 33.3% said precinct and 23.8% gave housing estate as the correct answer.

On Question 7 (literal) of the Texan test neither of the most frequently given answers was correct. The question read: The Ross's brand was the_____. The correct answer was the Rocking R which was explicitly stated in the text. The Texan group gave two answers which represented names of horses in the story (Play Boy and Texas Pride). The majority of the Scottish group thought the answer was Texas Pride (64%). Both groups answered "What is being branded?" not "What is the name of the brand?" Neither demonstrated background experiences with names of brands although this information was provided in the Texan thematic unit.

On Question 1 (inferential) of the Scottish test, interference from original culturally related schema was observed. The question read: Simon put on Jessica's jumper. Another word for jumper is _____. The Scottish pupils (92%) knew that a jumper was similar to a sweater. After discussing in the thematic unit that in Scotland a jumper is like a sweater not a dress, as the Texan students originally thought, the Texan students did not demonstrate a clear understanding of the concept. On the post-test 38.1% of the Texan students marked sweater, while the same percentage (38.1%) marked dress.

Interference from original culturally related schemata was observed in the answers to two other questions. On Question 1 (inferential) of the Texan test the pupils/ students were asked why Cissy wore jeans. The Texan students (85.7%) understood that she wore them to protect herself from the the brush. The Scottish pupils did not show clear understanding of this concept, although it was covered in the thematic unit. The most frequently marked answer by the Scottish pupils was that she wore jeans because she wanted to (48%). Only 28% of the pupils marked the correct answer. In Scotland children wear jeans because they want to wear them.

On Question 2 (inferential) of the Texan test the pupils/students were asked to describe biscuits. The question read: Cissy ate sausage, eggs, and hot biscuits for breakfast. Biscuits are similar to _____. The possible answers were cookies, muffins, scones, and pancakes. Most of the Texan students (71.4%) said that biscuits were like muffins. Eighty percent of the Scottish pupils thought that biscuits were cookies, which is the acceptable Scottish answer.

Answers to the other two questions demonstrated problems of understanding that were related to instruction. On Question 3 (inferential) of the Scottish test the pupils/students were asked the location of the Antonine wall.

After instruction, 61.9% of the Texan students were able to answer that the wall had been built across the narrowest point of Scotland. This information was provided to them in the thematic unit. The Scottish pupils displayed only limited understanding of this concept. The most frequently given answer by the Scottish group (40%) was that the wall had been built at the widest part of Scotland. When asked about this answer, the teacher said that in the curriculum for this particular school, the study of the Roman invasion of Britain did not appear until the following year. These pupils had not yet studied the Romans.

Understanding of the Scottish climate was examined in Question 5 (inferential) of the Scottish test. Most of the Scottish pupils (76%) knew that Scotland had mild summers and cold winters. Even after instruction, the Texan students did not understand this concept. The answers for this group were almost evenly divided between mild summers and cold winters (33.3%) and mild winters and summers (38.1%). Perhaps the information in the Scottish thematic units was too vague. Through a demonstration of the geographical location of Scotland and a discussion of the type of dress the people wear, it was assumed that the students could infer the weather and climate. Apparently, they were not able to do so.

Discussion

The study was designed to answer two basic questions. The first question looked at the effect of culturally related schemata on comprehension. This task was accomplished in two ways, first by assessing how well two groups of students/pupils comprehended passages about their own cultures, and second how well the same groups understood a passage about the differing culture. It was assumed that the groups would be able to answer questions about their own culture, and that the same groups would have difficulty answering questions about the other culture. In only 12 of the 20 questions across both cultures and both tests was this supported. On the Scottish test, a large percentage (75% or more) of the Scottish pupils answered correctly 7 of the 10 questions. On the Texan test, three-fourths or more of the Texan students answered only 5 of the 10 questions. A slightly smaller percentage of Texan students (71.4%) answered two other questions. In this study many of the Scottish pupils misunderstood the term precinct, had not learned about the

building of the Antonine Wall, and were unfamiliar with potato scones. Many of the Texan students were unfamiliar with the cowboy schema of the passage. Terms such as pick-up truck, corral, and the Rocking R brand were not clear for many of the Texan students. Five of the 8 questions not answered by three-fourths of both groups required the use of background knowledge to answer the questions. For these questions, many of the pupils/students did not have sufficient background information to answer correctly. It would appear that all pupils/students of any culture do not have the same level of information or understanding of that culture. Even within an identified cultural group there are wide variations in both breadth and depth of culturally related schemata.

The second part of this question asks whether pupils/students can answer questions about another culture. It was assumed that few pupils/students of a particular culture (25% or less) would be able to answer questions about another culture. Many of the students in the two groups were able to answer questions about the other culture. For 14 of the 20 questions, more than one-fourth of the students in one cultural group could answer questions about the differing culture. For three of the questions across both tests, the level of understanding approached the 75% criteria established in the first part of this question. It must be stated though that all three of these questions were at a literal level of understanding. The ability of both groups to answer these culturally related questions may be a function of the individual pupils'/students' knowledge of the world in general.

The answer to question one is a qualified "no." It appears that not all students/pupils of a cultural group share the same knowledge or understanding of their own culture. It also seems that pupils/students of a culture know considerably more about other cultures than was expected in this study.

Question two assessed the effectiveness of thematic units as a strategy for building background experiences as a means of improving comprehension. It was assumed that not only would the scores of the pupils/students of both groups improve after instruction, it was assumed that the scores of a cultural group would approximate the scores of the other group. Improvement in scores was found on 13 of the 20 questions across both groups. The Texan students improved on 8 of the 10 questions on the post-test for the Scottish passage, but the Scottish pupils improved on only 5 of the 10 questions for the Texan passage. The magnitude of the improvement for the Texan group ranged from 14.2% to 38.1%, with 23.8% the most frequently noted percentage of

improvement (4 of the 8 questions). The range of improvement for the Scottish group was from 4% to 28%. It appears from these data that instruction was more effective for the Texan group than for the Scottish group. While the units were matched as carefully as possible in terms of content, activities, and time, the researcher who taught the lessons was a Texan. Two factors, knowledge of specific students' strengths and weaknesses and knowledge of the cultural characteristics of the group, may effect the successful use of thematic units as a vehicle for instruction.

Were the scores of each group after instruction similar to the original group? On only 8 of the 20 questions across both tests did the scores of the two groups fall within 10 percentage points of the other. While the scores of many students/pupils improved, the other cultural group did not score as the original group. A closer look at the answers given by both groups to the questions on both tests indicates that while the two groups did not meet the above criteria on many of the questions, on 13 of the questions each group gave the correct answer most frequently. It would appear that a one-week thematic unit can be used to improve students'/pupils' knowledge, but thematic units do not compare in terms of the depth of understanding that is achieved by living a lifetime within that culture. On four of the questions across both tests, the pupils'/students' original cultural experiences were more important than the instructional information that was given in the units.

The answer to this question is a qualified "yes". The use of thematic units as a method for improving comprehension is a viable strategy provided that certain factors are considered: (1) the content to be taught; (2) the strategies to be planned; (3) and most importantly, the characteristics of the students to be instructed. This is not to say that the teacher using thematic units must share the same cultural background as the students, but it does indicate that the teacher must be knowledgeable and understanding of the cultural differences among children.

Conclusions

This study attempted to answer two questions within a cross-cultural context. First, what is the effect of culturally related schemata on comprehension? Are readers of an identified cultural group able to successfully

comprehend authentic texts which contain concepts and vocabulary which relate to their own culture? Conversely, do members of an identified cultural group have difficulty understanding a passage about a differing culture? For this study the answers to both parts of this question are a "qualified" no. It would appear from these data that within any identifiable cultural group there is much diversity. It seems that living in a specific geographic area, sharing a similar socioeconomic status, or perhaps speaking a particular language or dialect does not guarantee that all members of that group share the same level of understanding about their culture.

It also appears that members of specific cultural groups share a great deal of information with members of other cultural groups, even when those groups are separated by thousands of miles. In this study, the Scottish pupils had prior knowledge of Texan cowboys and ranches. Admittedly, much of this information was somewhat distorted through exposure to television. The Texan students had less prior knowledge of the Scottish culture, but were familiar with kilts and bagpipes. Across both cultural groups there were more similarities than differences. Both groups of pupils/students went to school, lived with their families, and enjoyed being with their friends. It may be that both groups drew from these areas of commonality when answering questions and comprehending text.

The second question looked at the use of thematic units to build background for understanding text. In this study each of the groups participated in a one-week thematic unit about the other culture. The units contained culturally relevant vocabulary and concepts, and were written and taught by the researcher, a Texan. The Texan students participating in the Scottish unit demonstrated gains on 8 of the 10 questions on the post-test for the Scottish passage. The Scottish pupils participating in the Texan unit did not do as well. They improved on only half of the questions on the post-test for the Texan passage.

While the thematic units were matched in terms of time, content, and activities, the cultural background of the teacher/researcher was not. It became apparent to the researcher that while she had considerable knowledge of Scotland and the Scottish culture, having visited there on many occasions, she did not have the depth of knowledge and understanding of the background experiences of the pupils to help them connect the new information in the unit to their existing knowledge of the world. With the Texan students there were many

opportunities to expand upon the information in the unit and relate that information to what the students already knew. She would often simply "say it again" in a different way if the students did not understand. For the Scottish group she knew only one way to explain the information to the pupils. If they did not understand, she would then ask the Scottish teacher for clarification. This lack of cultural awareness on the part of the teacher/researcher may be considered a weakness of this particular study.

Another weakness of this study may be that the units were written solely by the researcher. Pappas and others (1990) suggest that the development of thematic units should be a collaborative effort. For students to assume a sense of ownership, they must be involved in the planning and writing of the unit. In this study, no effort was made to gather student input either at the developmental or the implementation stages of the project.

What are the implications of these data for teachers? First, it is important that teachers be aware of and sensitive to the cultural diversity among the students in their classes. Donna Norton, in her award winning book, *Through the Eyes of a Child* (1991), states:

> Learning about other cultures allows children to understand that people who belong to racial or ethnic groups other than theirs are real people, with feelings, emotions, and needs similar to their own--individual human beings, not stereotypes (p. 531).

This is true for teachers also. Only by understanding and valuing the various cultures of the students in their classrooms can teachers help these students develop a sensitivity to the needs of others and also learn to value and demonstrate a sense of pride in their own culture. Second, it is important that teachers develop and cultivate the ability to see students as individuals, not just as members of groups. The process of labeling students by geographic location, language, or ethnicity implies that all members of these groups are similar, if not identical. While student share similarities with others, in reality each is an individual and should be valued for his or her uniqueness. This study demonstrates not only the diversity that is found within a culture, but also the diffusion that occurs between cultures.

A second implication on this study concerns the use of thematic units to build background experiences to aid comprehension of text. It would seem from these data that thematic units are a viable strategy for building background provided that certain factors are considered. Development of the units should

be a cooperative effort between teacher and students. To develop units that build background for comprehension, teachers should have knowledge of the content to be covered; understanding of the appropriate activities to teach that content; and sensitivity to their students' strengths and weaknesses, interests, and cultural background.

Finally, this study should be extended to assess the understandings of two cultures which share the same geographic location. Within this setting, the units should be developed and taught by a member of each identified cultural group. The units should also be developed collaborative with the students in each of the groups.

If the questions addressed in this study can be supported through further study, this information may have a profound effect upon reading instruction for students whose cultures differ from the majority culture. No longer will teachers be able to simply place children into a standardized reading curriculum which requires students to read only stories or passages chosen by the teacher, the school, or the textbook publisher. If it can be confirmed that children understand best text that is of interest to them, pertains to their culture, or builds on existing background information, standardized curricula such as basal readers will no longer be acceptable. This investigation cannot confirm these assumptions, but perhaps further study will be able to do so.

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Table 1
Research Design

Group	Pre-test		Treatment	Post-test	
	Scot Test	Tx Test		Scot Test	Tx Test
Tex	X	X	Scot Unit	X	O
Scot	X	X	Tex. Unit	O	X

Table 2
Comparison of Scores of Children in the Two Groups on the Texas Test

Question	Concept	Scot Group Pre-test	Scot Group Post-test	Tex Group Pre-test
Q1*	clothing	30.8	26.9	85.7
Q2*	breakfast	3.8	19.2	74.1
Q3	figurative language	96.2	92.3	81.0
Q4*	pick-up truck	30.8	3.8	66.7
Q5	mesquite	46.2	69.2	81.0
Q6*	corral	50.0	46.2	42.9
Q7	brands	15.4	15.4	0.0
Q8*	cutting horse	57.7	76.9	76.2
Q9	branding to prove ownership	69.2	84.6	71.4
Q10	price for horse	80.8	80.8	85.7

*inferential comprehension questions

Table 3
Comparison of Scores of Children in the Two Groups on the Scottish Test

Question	Concept	Tex Group Pre-test	Tex Group Post-test	Scot Group Pre-test
Q1*	jumper	9.5	38.1	92.3
Q2*	potato scones	33.3	57.1	57.7
Q3*	position of Antonine Wall	23.8	61.9	30.8
Q4*	Clyde	23.8	42.9	76.9
Q5*	Scottish climate	66.7	33.3	73.1
Q6	little bread soldiers	71.4	95.2	84.6
Q7	cost of nappy	66.7	90.5	84.6
Q8	precinct	9.5	33.3	7.7
Q9	colour-in poster	66.7	66.7	80.8
Q10	Roman coins	81.0	95.2	88.5

*inferential comprehension questions

Table 4
Improvement in Scores after Instruction across Tests, Groups, and Question Type

Test	Question		Question Type	Pre test	Post test	Improve-ment
				Tex	Tex	
Scot	Q1	jumper	Inf	9.5	38.1	28.6
	Q2	potato scones	Inf	33.3	57.1	23.8
	Q3	location of Antonine Wall	Inf	23.8	61.9	38.1
	Q4	Clyde	Inf	23.8	42.9	19.1
	Q5	Scottish weather	Inf	66.7	33.3	-33.4
	Q6	bread soldiers	Lit	71.4	95.2	23.8
	Q7	cost of nappy	Lit	66.7	90.5	23.8
	Q8	precinct	Lit	9.5	33.3	23.8
	Q9	colour-in poster	Lit	66.7	66.7	00
	Q10	Roman coins	Lit	81.0	95.2	14.2
				Scot	Scot	
Tex	Q1	wearing jeans	Inf	28	28	00
	Q2	biscuits	Inf	16	00	-16.
	Q4	pick-up	Inf	32	60	28
	Q6	corral	Inf	52	48	-04
	Q8	cutting horse	Inf	56	80	24
	Q3	figurative language	Lit	96	96	00
	Q5	mesquite	Lit	44	72	28
	Q7	brand	Lit	16	16	00
	Q9	reason for branding	Lit	68	88	20
	Q10	cost of horse	Lit	80	84	04

Table 5
Answers to Literal Questions across Groups and Tests

Test	Question		Most Frequent Answer(s)	% Questions Answered	
				Scot (pre)	Tex (post)
Scot	Q6	breakfast	little bread* soldiers	84	95
	Q7	cost of nappy	pound*	84	90.5
	Q8	leaving from	precinct*	9.5	33.3
			housing estate	56	23.8
	Q9	leaflet contained	colour-in poster*	84	66.7
	Q10	number coins	fifty coins*	88	95.2
				Tex (pre)	Scot (post)
Tex	Q3	Cissy said	"I'll beat you by a country mile."*	81	96
	Q5	gather mesquite	build fire for branding irons*	81	72
	Q7	name of brand	Play Boy	42.9	12
			Texas Pride	38.1	64
			(neither was correct)		
	Q9	reason to brand	prove ownership*	71.4	88
	Q10	cost horse	$600*	85.7	84

*correct response

Table 6
Answers to Inferential Questions across Groups and Tests

Test	Question		Most Frequent Answer(s)	% Questions Answered	
				Scot (pre)	Tex (post)
Scot	Q1	jumper	sweater*	92	38.1
			dress	04	38.1
	Q2	potato scones	pancakes*	56	57.1
	Q3	location of Antonine wall	widest	40	14.3
			narrowest*	32	61.9
	Q4	Clyde	river or firth*	80	42.9
	Q5	Scottish climate	mild summers & cold winters*	76	33.3
			mild winters & summers	04	38.1
				Tex (pre)	Scot (post)
Tex	Q1	reason for jeans	protection*	85.7	28
			desire	00	48
	Q2	biscuits	muffins*	71.4	0
			cookies	00	80
	Q4	pick-up	small truck*	66.7	60
	Q6	corral	cattle pen*	42.9	48
	Q8	cutting horse	to herd cattle*	76.2	80

*correct response

Figure 1

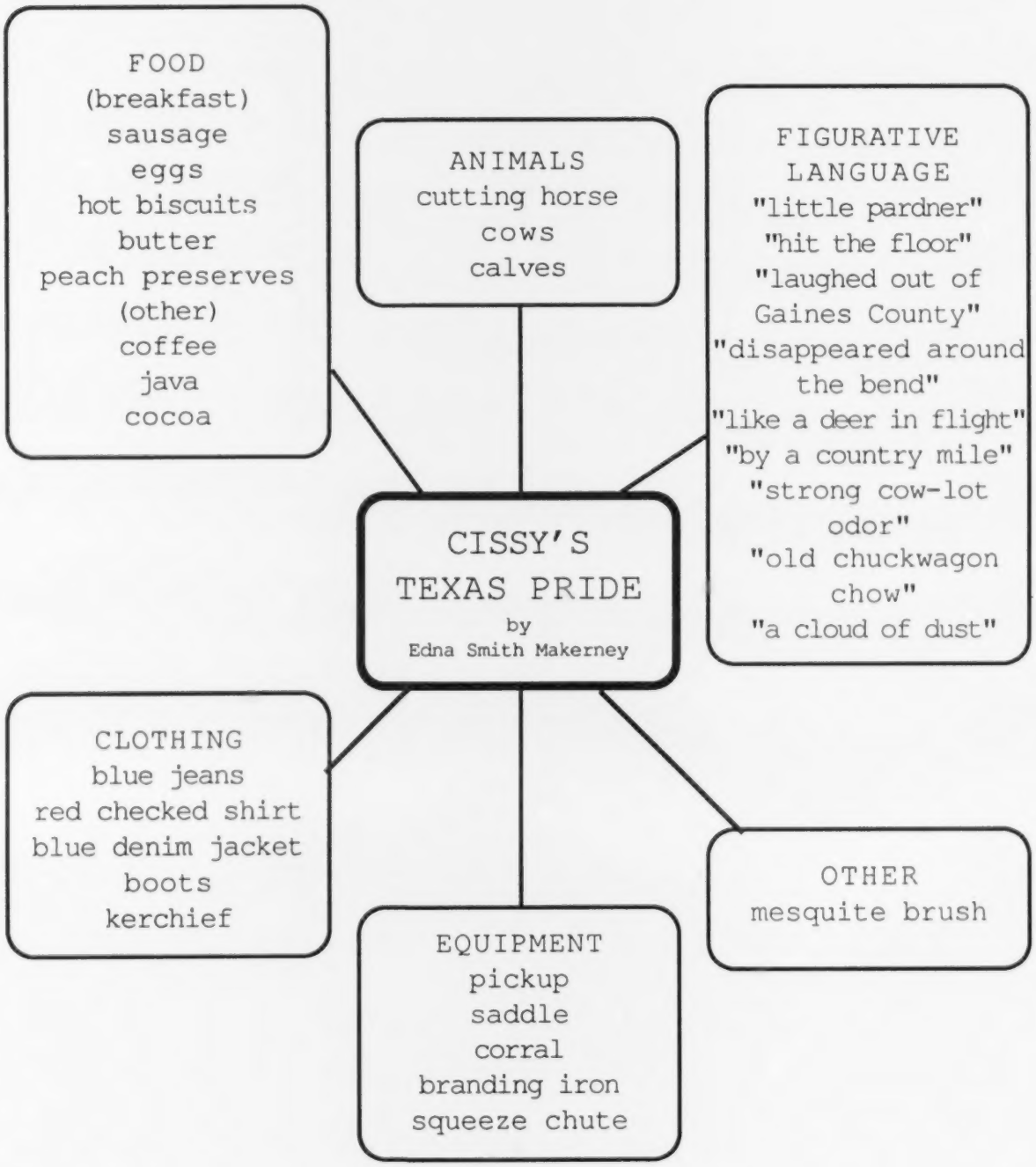
FOOD
(breakfast)
sausage
eggs
hot biscuits
butter
peach preserves
(other)
coffee
java
cocoa
ANIMALS
cutting horse
cows
calves
FIGURATIVE LANGUAGE
"little pardner"
"hit the floor"
"laughed out of Gaines County"
"disappeared around the bend"
"like a deer in flight"
"by a country mile"
"strong cow-lot odor"
"old chuckwagon chow"
"a cloud of dust"
CISSY'S TEXAS PRIDE
by
Edna Smith Makerney
CLOTHING
blue jeans
red checked shirt
blue denim jacket
boots
kerchief
EQUIPMENT
pickup
saddle
corral
branding iron
squeeze chute
OTHER
mesquite brush

Figure 2

HISTORY
Roman invasion
of Britain
wild Caledonian
tribes
WWI-
Flanders Fields
TERMS
half past ten
pound
Head
weekly market
colour-in poster
nappy pail
precinct
town centre
FOOD
(breakfast)
fried potato scones
bacon
eggs
little bread soldiers
(lunch)
cheese sandwiches
juice
SIMON'S
CHALLENGE
by
Theresa Breslin
CLOTHING
nappy
pants
vest
socks
trousers
jumper
FIGURATIVE
LANGUAGE
"took down the
shower head and
sluiced her off"
GEOGRAPHY
River Forth
Clyde
Lowlands of
Scotland
Kelvin Valley
Kilsyth &
Campsie Hills